

## **REMARKS**

Claims 1-35, all the claims pending in the application, stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion.

### **I. The Prior Art Rejections**

Claims 1-35 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Venkayala, et al. (U.S. Publication No. 2003/0212679), hereinafter referred to as Venkayala, in view of Rosen, et al. (U.S. Patent No. 6,513,025), hereinafter referred to as Rosen. Applicants respectfully traverse these rejections based on the following discussion.

The claimed invention provides a method of searching data in databases using an ensemble of models, wherein a selected sub-ensemble of models is applied in place of the ensemble. In the rejection, the Office Action argues that “a category associated with probability” of Venkayala teaches the sub-ensemble of the claimed invention. However, the “category associated with probability” is not a sub-ensemble that is applied to a supervised model. Instead, the “category associated with probability” is a result of the application of “a record whose target value is unknown” to the supervised model. Therefore, as explained in greater detail below, Applicants respectfully submit that the prior art of record does not teach or suggest the claimed invention.

The Office Action argues that Venkayala teaches “applying said sub-ensemble, in place of said ensemble, to an example to make a prediction” (Office Action, p. 12, para.

5). Such features are defined in independent claims 1, 8, 15, 21, 28, and 35 using identical language.

More specifically, the Office Action argues that “a category associated with probability” teaches the sub-ensemble of the claimed invention; and, “a supervised model” teaches the example of the claimed invention (Office Action, p. 13, para. 1).

However, Venkayala does not teach that the “category associated with probability” (which the Office Action asserts teaches the sub-ensemble) is applied to the “supervised model” (which the Office Action asserts teaches the example). Independent claims 1, 8, 15, 21, 28, and 35 define “applying said sub-ensemble, in place of said ensemble, to an example to make a prediction”.

Instead, “a record whose target value is unknown” is applied to the supervised model (Venkayala, para. 0030, stating that “applying to a supervised model a record whose target value is unknown”). As also discussed in paragraph 0003 of Venkayala, “[o]nce the model is built … [i]t is then used to predict (or score) unknown class values of real-world records”. As further discussed in paragraph 0020 of Venkayala, “[i]f the model type is supervised … it can be used to predict (or score) the class value of a record whose class is not known”.

The application of the “record whose target value is unknown” to the supervised model results in a “score/prediction”, which is a “category associated with probability” (Venkayala, para. 0030, stating that “[a] score/prediction is a category associated with probability as the result of …”).

Accordingly, contrary to the position taken in the Office Action, the “category associated with probability” is not a sub-ensemble that is applied to a supervised model; rather, the “category associated with probability” is a result of the application of “a record whose target value is unknown” to the supervised model. Therefore, it is Applicants’ position that Venkayala fails to teach or suggest the claimed feature of “applying said sub-ensemble, in place of said ensemble, to an example to make a prediction” as defined by independent claims 1, 8, 15, 21, 28, and 35.

In addition, Applicants draw the Examiner’s attention to paragraph 0021 of Applicants’ disclosure, which provides that FIGS. 2 and 3 illustrate the operation of the invention graphically. More specifically, FIG. 2 illustrates the data set for database 200 and the original ensemble 202 of models 204 used to make a prediction 206. FIG. 3 illustrates sub-ensembles 300, 302, 304. Sub-ensemble 300 includes only the most accurate model 308. Sub-ensemble 302 includes the most accurate model 308 and the next most accurate model 310. Sub-ensemble 304 includes the most accurate model 308, the next most accurate model 310, and the third most accurate model 312.

To the contrary, nothing within Venkayala discloses ensembles and sub-ensembles of models. Instead, Venkayala teaches that only a *single* model is built and utilized. More specifically, as illustrated in Fig. 1 of Venkayala, the single trained model 110 is built via training/model building 102, wherein the single trained model 110 is utilized in apply 112 to create scored data 118.

Nothing within Venkayala teaches or suggests the creation or utilization of ensembles and sub-ensembles of models to make a predication. In Fig. 2, nothing

discloses that a sub-ensemble of models are utilized in item 202; rather, item 202 only discloses the step of “INPUT MODEL”, which is singular, not plural. Therefore, it is Applicants’ position that Venkayala fails to teach or suggest the claimed feature of “applying said sub-ensemble, in place of said ensemble, to an example to make a prediction” as defined by independent claims 1, 8, 15, 21, 28, and 35.

Therefore, it is Applicants’ position that the cited prior art, either individually or in combination, does not teach or suggest many features defined by independent claims 1, 8, 15, 21, 28, and 35 and that such claims are patentable over the prior art of record. Further, it is Applicants’ position that dependent claims 2-7, 9-14, 16-20, 22-27, 29-34 are similarly patentable, not only because of their dependency from a patentable independent claims, but also because of the additional features of the invention they defined. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

## **II. Formal Matters and Conclusion**

In view of the foregoing, Applicants submit that claims 1-35, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any

deficiencies and credit any overpayments to Attorney's Deposit Account Number 50-0510.

Respectfully submitted,

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